

Australian Gold Fund

Which Gold Producer Stocks Deliver Best the Risk-Adjusted Reward for Traders and Investors?

A Study of ASX-Listed Gold Producer Stocks from 2015-2021

Report Findings

The key findings in this report include the following:

- For short-term traders in gold producer stocks, they are more likely to find success over the longer term if they buy and sell larger producers as they are more likely to offer better potential of outperforming returns per unit of volatility of returns.
- For long-term investors, returns are more likely to come from stock picking rather than selecting a particular category of producers by the scope of their operations due to the high volatility in this industry.
- Larger producer stocks are more price sensitive to changes in the gold price, while smaller producer stocks have a higher volatility of returns, but not necessarily aligned to changes in the gold price. This makes intuitive sense.
- Traders may sometimes be rewarded with outperforming returns by merely trading high volatility stocks, but this is not likely to prevail over the longer term as different parts of the trading cycle give different risk-reward outcomes.
- Investors in gold mining stocks need to be patient with the gold stock cycle as strong performance occurs in certain periods, followed by sharp declines and rangebound periods where volatility can erode capital.
- Siegel's paradox is a trap for buy and hold investors as well as short-term traders who blindly ride the volatility wave in this industry.
- Companies behave very differently to changes in the US dollar gold price and the Australian dollar gold price, with larger companies more tied to the US dollar gold price, irrespective of their operations.
- The US dollar gold price is very weakly correlated to the Australian dollar gold price over the study period, and this is due to the floating Australian dollar.

Introduction

The well-known statement in the investment community of “more risk, more returns” is often used yet it is conflated with investors blindly taking risk expecting that it should deliver profits. A more rigorous statement would be “if you want a higher return, you are expected to take greater risk”. Even that statement, however, is not watertight.

This article is not discussing the theoretical rigour of the risk-return tradeoff but focuses instead on getting a better understanding of ASX-listed gold producers in terms of their historical performance and risk profile. The analysis hopes to provide insights for readers into identifying whether higher returns may be due to selecting higher risk companies, or whether there are idiosyncratic factors for certain companies that result in them delivering better returns. We explore the traditional mean-variance approach but also provide alternatives to looking at risk and return using more intuitively correct measures, including the geometric mean return, % days of positive and negative returns and the price sensitivity of the company's stock price to gold price movements.

Gold mining stock investment is seen by many as being an extremely high-risk investment and many avoid this industry because of its volatility. However, those who have taken the plunge into this industry and weathered the storms would say that the potential returns to be gained vastly outweighs the risk involved. Many veteran investors choose this industry because of the risk and they have managed to identify how to use it to their advantage. Thus, our article seeks to provide our insights and share with our readers how we use data to inform our investment decisions.

The current consensus on the risk-reward in investing in gold producer stocks seems to suggest that mid-tier gold producers have the highest potential for risk-adjusted reward, that smaller gold producers are more likely to benefit with the rise in the gold price and thus have the greatest leverage and that the larger gold producer stocks have more price stability and hence will deliver less risk-adjusted returns. We will test these commonly held beliefs using our sample data for the ASX-listed gold producers. Given also that the US dollar gold price and Australian dollar gold price are not moving in close correlation with each other, we will separately analyse the correlation of performance between gold producer stocks and the gold price in both currencies to see if there are any significant differences between the reward and risk profiles.

Data

Our study focuses on ASX-listed gold producers that have produced commercial quantities for at least three years during the 2015-2021 period. The aim is to be able to capture the price movements of a producer against movements in the gold price, which is the company's main source of revenue. We have chosen 30 companies, which is given in the table below:

Company Name	ASX Code	Category	Date Start	Date End	Production Guidance	AISC Guidance	Historic Production Range	Historic AISC Range
Austral Gold	AGD	D	1/01/2015	1/03/2021	90 000-95 000oz	\$1 040-\$1 300	50 000-80 000oz	\$900-\$1 450
Anglogold Ashanti	AGG	A	1/01/2015	1/03/2021	2 700 000-2 900 000oz	\$1 400-\$1 600	3 050 000-3 900 000oz	\$1 100-\$1 600
Alkane Resources	ALK	E	1/01/2015	1/03/2021	47 000-52 000oz	\$1 450-\$1 600	33 000-78 000oz	\$950-\$1 360
Aurelia	AMI	D	1/01/2015	1/03/2021	100 000-113 000oz	\$1 425-\$1 575	13 000-118 000oz	\$510-\$1 500
Alacer Gold	AQG	C	1/01/2015	24/09/2020	Merged with Silver Standard Resources		95 000-315 000oz	\$870-\$1 400
Beadell Resources	BDR	D	1/01/2015	18/02/2019	Merged with Great Panther Resources		122 000-146 000oz	\$1 300-\$1 500
Dacian Gold	DCN	D	1/01/2015	1/03/2021	110 000-120 000oz	\$1 400-\$1 550	35 000-139 000oz	\$1 620-\$1 730
Doray Minerals	DRM	D	1/01/2015	29/03/2019	Merged with Silver Lake Resources		80 000-102 000oz	\$1 165-\$1 275
Evolution Mining	EVN	B	1/01/2015	1/03/2021	670 000-730 000oz	\$1 240-\$1 300	430 000-845 000oz	\$800-\$1 050
Gascoyne Resources	GCY	D	1/01/2015	1/03/2021	70 000-80 000oz	\$1 200-\$1 300	58 000-73 000oz	\$1 585-\$2 140
Kirkland Lake Gold	KLA	A	1/01/2015	1/03/2021	1 300 000-1 400 000oz	\$1 050-\$1 150	210 000-1 370 000oz	\$800-\$1 150
Kingsrose Mining	KRM	E	1/01/2015	1/03/2021	Resuming Exploration		12 900-24 800oz	\$940-\$1 940
Medusa Mining	MML	D	1/01/2015	1/03/2021	90 000-95 000oz	\$1 680-\$1 750	80 700-108 500oz	\$1 325-\$1 670
Millennium Minerals	MOY	D	1/01/2015	1/03/2021	Delisted Due to Insolvency		48 000-91 500oz	\$1 175-\$1 800
Newcrest Mining	NCM	A	1/01/2015	1/03/2021	1 950 000-2 150 000oz		2 150 000-2 487 500oz	\$940-\$1 290
Northern Star	NST	A	1/01/2015	1/03/2021	940 000-1 060 000oz	\$1 400-\$1 500	575 000-905 000oz	\$1 000-\$1 500
Oceanagold	OGC	C	1/01/2015	1/03/2021	340 000-380 000oz	\$1 370-\$1 550	300 000-575 000oz	\$800-\$1 850
Pantoro	PNR	D	1/01/2015	1/03/2021	35 000-37 000oz	\$1 550-\$1 750	16 500-52 200oz	\$1 130-\$1 740
Perseus Mining	PRU	C	1/01/2015	1/03/2021	300 500-329 000oz	\$1 400-\$1 600	154 000-272 000oz	\$1 050-\$1 850
Red 5	RED	D	1/01/2015	1/03/2021	80 000-85 000oz	\$2 150-\$2 280	23 600-102 000oz	\$1 090-\$1 785
Ramelius Resources	RMS	C	1/01/2015	1/03/2021	260 000-280 000oz	\$1 230-\$1 330	87 000-230 500oz	\$1 160-\$1 200
Regis Resources	RRL	C	1/01/2015	1/03/2021	355 000-380 000oz	\$1 230-\$1 300	300 000-363 500oz	\$900-\$1 250
Resolute Mining	RSG	C	1/01/2015	1/03/2021	350 000-375 000oz	\$1 560-\$1 650	284 000-393 000oz	\$1 100-\$1 560
Saracen Mineral Holdings	SAR	B	1/01/2015	3/02/2021	Merged with Northern Star		167 500-520 000oz	\$1 030-\$1 380
St Barbara	SBM	C	1/01/2015	1/03/2021	370 000-410 000oz	\$1 360-\$1 510	362 000-403 000oz	\$890-\$1 370
Silver Lake Resources	SLR	C	1/01/2015	1/03/2021	240 000-250 000oz	\$1 400-\$1 500	122 000-264 500oz	\$1 280-\$1 360
Silver Standard Mining	SSR	B	1/01/2015	1/03/2021	720 000-800 000oz	\$1 400-\$1 550	350 000-577 000oz	\$800-\$1 400
Troy Resources	TRY	D	1/01/2015	1/03/2021	35 000-40 000oz	\$1 950-\$2 200	24 000-70 000oz	\$1 200-\$2 400
Westgold Resources	WGX	C	6/12/2016	1/03/2021	270 000-300 000oz	\$1 450-\$1 550	235 000-267 000oz	\$1 215-\$1 485
Wiluna Mining Corporation	WMX	D	1/01/2015	1/03/2021	56 000-60 000oz	\$1 950	40 000-70 000oz	\$1 630-\$2 000

Source: Various Annual Reports

We classify the companies based on their annual production that reflect their scope of operations. These categories are in the Valuation Thesis. Several gold producers are not included in our study, such as Gold Road Resources and West African Resources, owing to analysis seeking to capture the performance over the last six years and several companies only recently began to produce. We have also included some companies that are no longer listed on the ASX, such as Beadell Resources, Millennium Minerals and Saracen Mineral Holdings, as they have produced over a significant proportion of the study period so their history would yield useful insights. For companies that have dual listing and only recently listed on the ASX, such as Kirkland Lake Gold and Silver Standard Resources, we have opted to use the NYSE price history instead.

Looking at their production and cost history, we can see that several companies have grown in its production over the last six years. Kirkland Lake, Northern Star, Silver Standard Resources and Evolution Mining underwent significant transformation from mid-tier producers to large and major producers through acquisitions of companies as well as individual mines. Dacian Gold, Gascoyne Resources, Perseus Mining and Wiluna Mining (formerly Blackham Resources) were able to organically grow through developing their mine deposits and increase production. Smaller mining companies such as Aurelia Metals, Red 5, Ramelius Resources and Silver Lake Resources also saw their company scope increase through mergers and mine purchases.

Surprisingly, on the operations side, almost all the companies could not escape increasing costs. Underpinned by the gold price rising, the profit margins in this industry strengthened so this allowed most companies in the industry to generate substantial net cashflows. However, we are puzzled by why AISC rose even as the oil price fell. For much of 2010-2014, the oil price had been trading at over US\$80/bbl but fell by the second half of 2014 to around US\$50/bb. The oil price took the world by surprise when it was trading as low as negative US\$37/bbl last April as a result of the worldwide shutdown following government response to the Wuhan virus pandemic. For much of the period in our analysis, the oil price traded in the US\$30-\$55/bbl range. The gold-oil ratio first began to widen to over 30 in late 2015-early 2016, presenting the gold mining companies with a very comfortable profit margin. This widened even further after the gold price began to spike in June 2019, to over 50. However, the AISC for most mining companies rose despite the oil price rising, suggesting that the companies are operating under inflationary conditions. One possible factor causing this is the declining ore grade in mines requiring more mining, crushing and processing to extract the gold. This is discussed in some detail in a report titled "Analysis of Drivers on the Operating Costs of Mines", released in early September.

Looking into the future production and cost guidance, we are witnessing what may possibly be another wave of industry consolidation as several larger companies have seized the opportunity of high gold price and strong stock prices to acquire smaller companies. In 2020 alone, we saw Kirkland Lake Gold acquire Detour Gold to upgrade its status to a major producer and join the ranks of AngloGold Ashanti and Newcrest, Northern Star merge with Saracen Mineral Holdings to become the fourth major producer listed on the ASX, Silver Standard Resources acquire Alacer Gold to become a large producer and Evolution Mining purchase the Red Lake mining complex from Newmont-Goldcorp.

Several companies have announced production guidance that will break historical records. Despite the significant consolidation and expected improvement in the economies of scale for several of these companies, we also see that the AISC guidance for 2021 will similarly be on the upper end or even exceed their historical ranges.

Company Performance – Stock Returns

Investors purchase gold mining stocks aiming to generate outsized capital gains relative to other stocks. Thus, we are interested in analysing what factors drive higher returns in this industry. To this end, we consider two returns metrics – the arithmetic mean and the geometric mean returns. We also consider the proportion of trading days these companies' returns are positive, negative or zero. We will also discuss the implication and differences in using these metrics for returns.

The arithmetic mean return is a commonly used measure that is calculated by taking the average of the daily returns over the period. However, the arithmetic mean return assumes that an investor has the same amount in the portfolio each day. Under the effects of Siegel's Paradox, the arithmetic mean return is deficient because a higher positive return is needed to compensate for a negative return. For example, if a portfolio experiences a 10% decline one day, a 11.1% gain is needed to reverse the effects of this decline. In more extreme declines, the gain is disproportionately higher – a portfolio needs to gain 200% to reverse a two-thirds decline in value. As such, the distribution of the arithmetic return for a profitable investment asset must be positively skewed rather than being symmetric. Given that the arithmetic mean return does not account for accumulation of past returns, it is more useful a measure for short-term traders who are looking to profitably invest by exploiting daily price movements.

The geometric mean return is more applicable to long-term investors as it accounts for the average return arising from the accumulation of past returns. The effect of Siegel's Paradox will be captured by the geometric mean return as the timing, order and magnitude of daily returns matter. Furthermore, the geometric mean return is negatively affected by high volatility of returns. The term "capital erosion" is well known among the trading community that uses leveraged contracts to speculate in the markets, signifying how wealth can be eroded due to wild swings in both directions.

Finally, the polarity of daily price movements is a useful metric to measure a stock's performance from a performance perspective. While this merely states whether the stock may be more likely to rise or fall on any given day and does not account for the magnitude, it contributes to assisting short-term traders who may find this information useful.

Measuring Company Stock Price Risk

The gold mining industry is notorious for its high risk both in a cyclical and daily technical fluctuations that can blindsides a buy-and-hold investor who was not forewarned that this is an industry where timing the market is more critical than time in the market. The most utilised measure for risk in the investment community is the volatility of returns, or simply the standard deviation of returns. We also consider three other risk measures that consider correlation with the gold price, the key driver for company profit, as well as risk-adjusted returns measures. We discuss these in some detail below.

Volatility of returns. The standard deviation of returns determines to what extent the daily returns may vary from the average return. This measure is as commonly used as it is poorly understood because price movements are not symmetric and also the measure does not distinguish downside and upside risk. A company stock may have a high volatility but this risk is biased towards the upside than the downside. Despite the volatility implying high risk, an investor of such a stock will enjoy high returns with little risk that they do not wish to bear.

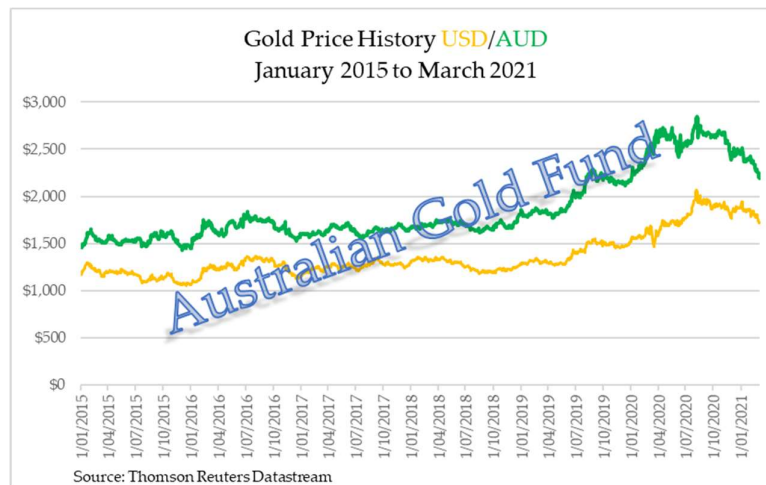
Beta against gold price. Gold producer stock prices may move with the gold price, but some may have a more pronounced movement than the gold price. Stock prices are largely driven by the market's expectation of future profits and thus the company's profit margins matter. This profit margin is often a leveraged function of the underlying gold price along with other factors. A beta exceeding 1 means the company's stock price will move more than the changes in the gold price. So, investors who want to have their investments tied to the gold price movement will prefer a higher beta company.

Sharpe ratio. The Sharpe ratio considers the excess return earned trading an asset relative to a risk-free asset, standardised by the volatility of the asset return. In other words, it measures the excess return per unit of volatility or total company risk. Given that short-term investors trade volatility, we use the arithmetic mean excess return of the gold producer stock to the gold price divided by the volatility. This is a comparative measure, with the ratio bearing little or no meaning in and of itself. In our study, we use the gold returns instead of the risk-free rate as the baseline measure. Thus, we are measuring the magnitude of excess returns against gold per unit of volatility of returns for the gold producer stock. As a rough guide, an asset with a Sharpe ratio of greater than 1 is desirable, implying that it yields more than 1% outperformance against the benchmark per unit of volatility.

Outperformance per unit beta (adjusted Treynor measure). The adjusted Treynor measure is similar to the Sharpe ratio, except that instead of per unit of volatility, we are calculating the excess return per unit of beta against the gold price for the gold producer stock. This measure is also used comparatively, with the measure bearing no meaning on its own. Given that beta is an intangible measure, the only meaningful threshold to deem whether an asset is good is that they have a positive Treynor measure, or that they outperform against the benchmark. Beyond that, it is difficult to come up with another threshold.

Results

We evaluate our results for three time periods – January 2015 to March 2021, January 2015 to December 2018 and January 2019 to March 2021. The reason for choosing the latter two periods is that we can observe what happens to the gold producer stocks when the gold price recovers and then is rangebound (2015-2018) and for the latter period (2019-2021), the gold price completes a full cycle of rallying, pulling back sharply and being rangebound, all within a shorter time period. The gold price history over this period is given in the figure below:



The arithmetic, geometric mean returns and volatilities of the gold price over the three periods are given in the table below:

	Geometric Mean Return			Arithmetic Mean			Volatility		
	2015-2021	2015-2018	2019-2021	2015-2021	2015-2018	2019-2021	2015-2021	2015-2018	2019-2021
AUD Gold	7.29%	7.36%	7.14%	7.88%	6.03%	11.28%	14.63%	13.28%	16.84%
US Gold	6.16%	2.24%	10.02%	6.77%	2.98%	14.78%	14.05%	12.83%	16.06%

Source: Thomson Reuters Datastream

The Australian gold price performed stronger than the US gold price over 2015-2021, as a result of a slight depreciation over the entire period of the Australian dollar relative to the US dollar. From 2015-2018, however, the US dollar strengthened more so and this was partly offset in the subsequent two years. The volatility of the gold price in both currencies are similar, although slightly higher for the Australian gold price due to the volatility of the Australian dollar. The correlation, interestingly, between the Australian gold price and US gold price returns over the three periods ranged 0.28-0.36, implying a weak positive relationship between the two gold prices.

The arithmetic mean returns and volatilities for our sample companies are given in the table below:

Category	Number	Arithmetic Mean			Volatility		
		2015-2021	2015-2018	2019-2021	2015-2021	2015-2018	2019-2021
A	4	39.67%	48.79%	22.85%	46.72%	45.01%	49.55%
B	3	44.86%	55.41%	25.17%	51.43%	51.61%	51.11%
C	9	39.33%	43.11%	30.04%	57.49%	57.31%	57.23%
D	12	30.59%	35.66%	45.84%	77.23%	76.19%	73.48%
E	2	20.04%	-0.50%	57.93%	69.90%	62.92%	80.98%

Source: Thomson Reuters Datastream

As mentioned earlier, the arithmetic mean return is more useful for short-term traders than long-term investors. Based on our sample, we find that the large producer stocks delivered the highest average annualised mean return and the micro producers delivered the lowest. However, the trend is the reverse in the most recent two years, where the smallest producers delivered the highest average gains. Note that our study has a low sample size for both categories so the results are by no means representative. As for volatility of stock returns, the larger producer stocks were less volatile than the smaller producer stocks and this trend is evidence in all three periods. Interestingly, over 2019-2021, short-term traders would indeed expect higher returns if they traded in gold producer stocks with higher volatility. The average volatilities in each category do not seem to vary much over the three periods.

Based on the limited sample size, we find that higher volatility of returns does not necessarily result in higher returns for short-term trading.

The geometric mean returns and the daily performance are given in the table below:

Category	Number	Geometric Mean Return			Daily Returns Performance		
		2015-2021	2015-2018	2019-2021	% Positive	% Negative	% Zero
A	4	36.07%	80.87%	7.69%	49.44%	45.58%	4.98%
B	3	39.55%	82.68%	8.89%	50.83%	44.20%	4.97%
C	9	28.09%	61.50%	12.58%	45.54%	44.24%	10.22%
D	12	-7.32%	15.63%	-11.85%	33.15%	35.70%	31.15%
E	2	-1.68%	-22.17%	22.69%	32.23%	35.59%	32.17%

Source: Thomson Reuters Datastream

An interesting set of results seems to emerge when we consider the geometric mean returns of gold producer stocks over the three different periods. For 2015 to 2021 and 2015-2018, the larger producer stocks delivered better returns for long-term investors than the smaller producers. The trend is overwhelming and unequivocal. Indeed in 2015, the entire gold mining industry had begun to come out of a scorching bear market starting from early 2013 when the Federal Reserve managed to cause the gold price to decline as a result of Operation Twist to increase long-term bond yields. The entire industry saw their stock prices decline by as much as 90% by late 2014, with very few exceptions. Thus, at the start of 2015, the entire industry was trading at its bottom and the larger producers managed to recover and sustain its price levels during the most recent industry-wide correction. During the most recent decline, the gold price has fallen around 15% from its peak in August 2020 and the gold producer stocks have fallen by an average of 20%, with smaller producers suffering more as a result of falling profit margins.

Several large and mid-tier companies, including Evolution Mining, Kirkland Lake Gold, Northern Star Resources, Ramelius Resources, Saracen Mineral Holdings, Silver Lake Resources and Silver Standard Resources also expanded their production through acquisitions and/or building new mines, with their stocks being re-rated by the market.

Interestingly enough, the trend is almost reverse for the geometric mean returns for the period from 2019-2021. At the start of 2019, the gold price has been trading in a rangebound fashion for almost two years after the bull market from 2015-2016. The larger producers have rallied significantly to its fair value or are somewhat overvalued at this stage. In mid-2019, as a result of the Federal Reserve reversing its policy to raise interest rates given two sharp and violent market corrections in 2018, this pushed the gold price to begin to break all-time record levels for non-US denominated currencies. The Australian dollar gold price exceeded \$2 000/oz in this rally, pushing the gold producer stock prices strongly once more. This cycle saw smaller producers rally stronger because their profit margins prior to the gold price rally were lower so they would enjoy a larger proportionate gain. With the exception of junior producer stocks seeing an average fall in their stock returns, the trend was reversed. The junior producers saw poor investment returns during this period as several companies either faced operational difficulties (Aurelia Metals, Dacian Gold, Doray Minerals, Gascoyne Resources, Millennium Mineral, Red 5, Troy Resources and Wiluna Mining) or were undertaking significant capital development that saw them diluting their capital to raise cash and depleting their cash reserves through mine building (Aurelia Metals, Pantoro Mining, Red 5 and Wiluna Mining).

The daily performance for gold producer stocks also delivered surprising results that seemed to counter what is commonly accepted facts. Traders often love to trade volatility in order to deliver profits. However, it appears that the larger producer stocks are more likely to rise on a daily basis than smaller producer stocks. This trend also appears to apply for all three periods, suggesting that short-term directional traders may be more likely to gain with larger producer stocks while volatility traders may prefer smaller ones that may have higher volatility but could be rangebound. Long-term investors seeking steady and more reliable returns will be better rewarded buying larger gold producer stocks over a longer term as they can reap the rewards of the gold price rising as the fiat currency system continues to dig its own bottomless grave. The wisdom of veteran gold stock investors on buying mid-tier companies appears to be justified by the data, as they have delivered strong returns and can benefit from either growing through acquiring smaller companies or by being acquired by major and large companies.

We now compare the gold producer stock risk profile using more targeted risk measures. The table below summarises the sensitivity of different category of gold producer stocks to changes in the gold price (gold beta), in both US dollar and Australian dollar terms:

Category	Number	US Gold Beta			AUD Gold Beta		
		2015-2021	2015-2018	2019-2021	2015-2021	2015-2018	2019-2021
A	4	1.46	1.41	1.54	0.71	0.59	0.85
B	3	1.35	1.40	1.31	1.19	1.28	0.96
C	9	1.23	1.17	1.28	0.91	1.07	0.70
D	12	0.85	0.88	0.72	1.19	1.36	1.00
E	2	0.45	0.18	0.77	1.01	0.75	1.11

Source: Thomson Reuters Datastream

Our sample yields a surprising set of trends. The price sensitivity to changes in the US dollar gold price is almost negatively correlated to the size of the producers, with larger producers having a higher beta and the smaller producers having low to very low beta. On the other hand, large and mid-tier producer stocks appear to be more sensitive to changes to the Australian gold price compared to the major and smaller producers. The trend for US dollar gold price appears to be relatively consistent while for the Australian gold price, the trend is less evident. We believe an intuitive explanation for this outcome is that the US dollar gold price is the leading market measure while the Australian dollar gold price is a secondary measure that is affected also by the exchange rate between the two currencies. One would expect that the ASX gold producer stocks would be more sensitive to changes in the Australian dollar gold price given they often have more Australian based operations and their financial results are reported in Australian dollar terms. However, it appears the US dollar gold price drives investor sentiment more strongly over the longer-term period. For smaller companies, they are more likely to be sensitive to Australian dollar gold price, perhaps in line with our intuitive reasoning.

Investors also prefer to buy gold producer stocks over gold bullion due to potential for outperforming returns as well as being able to leverage off the long-term benefits of the gold price in a failing fiat currency system. We have considered to what extent these companies deliver risk-adjusted outperformance. For short-term traders, the Sharpe ratio may be applicable. The table below gives the average Sharpe ratio for our sample companies:

Category	Number	US Gold Sharpe Ratio			AUD Gold Sharpe Ratio		
		2015-2021	2015-2018	2019-2021	2015-2021	2015-2018	2019-2021
A	4	0.68	0.97	0.14	0.65	0.90	0.21
B	3	0.74	1.02	0.20	0.72	0.96	0.27
C	9	0.55	0.65	0.24	0.53	0.60	0.30
D	12	0.30	0.43	0.49	0.29	0.38	0.54
E	2	0.19	-0.07	0.55	0.17	-0.12	0.60

Source: Thomson Reuters Datastream

Given the similar arithmetic mean return and volatility for Australian dollar gold and US dollar gold prices, the Sharpe ratio for the different categories of companies follow similar trends. Over the entire period of the study, short-term traders would on average be expected to deliver superior risk-adjusted returns for the larger producer stocks. This is similar for 2015-2018 when the gold price began to recover. However, for the last two years, short-term traders would earn higher risk-adjusted returns trading the junior producer stocks instead. Theoretically, a Sharpe ratio of greater than 1 would imply a good investment as the asset delivers more than 1% outperformance against the benchmark asset for every 1% of volatility. In our sample, the proportion of companies that had a Sharpe ratio greater than 1 for any given period in either the US dollar or Australian dollar varied between 3-23%, with the average being 12%. This seems to suggest that gold producer stocks are not particularly rewarding for short-term traders as they seem to deliver less outperformance than the risk borne. That being said, we do recognise that the percentage returns generated by some of these companies have been in the triple digit zone, some able to deliver returns in multiples of what was invested.

In measuring the outperformance of the gold producer stocks relative to the gold beta or the magnitude of the company's price sensitivity to the gold price, we use the adjusted Treynor measure. Naturally, the higher the Treynor measure, the greater the leverage of the company's returns to the gold price. We are aware that larger producers have a higher price sensitivity to the gold price as more of their assets are tied to generating revenue from the sale of gold, as would be a larger proportion of their profit margin. The table below gives the average of the adjusted Treynor measure for different categories of gold producers:

Category	Number	US Gold Treynor Measure			AUD Gold Treynor Measure		
		2015-2021	2015-2018	2019-2021	2015-2021	2015-2018	2019-2021
A	4	0.23	0.62	-0.06	0.43	2.09	-0.08
B	3	0.25	0.61	-0.05	0.28	0.63	-0.02
C	9	0.16	0.50	-0.03	0.26	0.48	0.15
D	12	-0.13	0.47	-1.85	-0.19	0.11	-0.31
E	2	-0.24	-1.28	0.04	-0.08	-0.33	0.10

Source: Thomson Reuters Datastream

Long-term investors appear to face a different trend than short-term traders when deciding which producer they should invest in to generate better risk-adjusted returns. For the US dollar gold price, larger producers have delivered better risk-adjusted returns when adjusted for the price sensitivity than smaller producers over the entire period and also in 2015-2018. However, for 2019-2021, it appears that long-term investors were more likely to face losses than if they simply invested in gold. In terms of the Australian dollar gold price, larger producers delivered on average higher returns when adjusted by the price sensitivity of the gold price for 2015-2021 and also in 2015-2018. For 2019-2021, long-term investors may be able to earn positive average returns for mid-tier and micro producer stocks, although careful stock selection is necessary. Around 65-70% of the companies were able to deliver long-term investors positive returns over the 2015-2021 and 2015-2018 periods, while this was much lower at around 35% for 2019-2021.

Appendix A – Arithmetic Mean Returns and Volatility of Returns By Company

Company Name	ASX Code	Category	Arithmetic Mean			Volatility		
			2015-2021	2015-2018	2019-2021	2015-2021	2015-2018	2019-2021
AUD Gold			7.88%	6.03%	11.28%	14.63%	13.28%	16.84%
US Gold			6.77%	2.98%	14.78%	14.05%	12.83%	16.06%
Anglogold Ashanti	AGG	A	30.71%	25.57%	40.18%	51.95%	47.44%	59.43%
Kirkland Lake Gold	KLA	A	65.17%	89.71%	19.90%	51.34%	51.97%	50.07%
Newcrest Mining	NCM	A	19.56%	23.22%	12.81%	35.24%	34.65%	36.34%
Northern Star	NST	A	43.24%	56.64%	18.52%	48.33%	46.00%	52.38%
Evolution Mining	EVN	B	43.91%	58.07%	17.78%	48.38%	49.40%	46.45%
Saracen Mineral Holdings	SAR	B	60.68%	72.93%	37.33%	53.08%	52.71%	53.80%
SSR Mining	SSR	B	30.00%	35.21%	20.40%	52.84%	52.73%	53.08%
Alacer Gold	AQG	C	34.63%	10.81%	90.42%	48.76%	44.92%	56.66%
Oceanagold	OCC	C	13.54%	34.48%	-25.08%	54.10%	50.33%	60.42%
Perseus Mining	PRU	C	44.41%	34.15%	63.33%	64.82%	66.26%	62.13%
Ramelius Resources	RMS	C	71.01%	74.39%	64.78%	65.39%	65.43%	65.38%
Regis Resources	RRL	C	21.39%	36.43%	-6.33%	45.29%	45.71%	44.47%
Resolute Mining	RSG	C	33.63%	57.11%	-9.66%	62.50%	64.56%	58.49%
St Barbara	SBM	C	66.71%	112.38%	-17.53%	59.29%	62.48%	52.56%
Silver Lake Resources	SLR	C	51.64%	47.89%	58.56%	64.78%	67.71%	59.05%
Westgold Resources	WGX	C	16.97%	-19.62%	51.88%	52.44%	48.43%	55.94%
Austral Gold	AGD	D	51.22%	18.89%	110.85%	94.77%	88.47%	105.38%
Aurelia	AMI	D	60.42%	91.06%	3.91%	98.66%	111.08%	70.17%
Beadell Resources	BDR	D	0.81%	-5.76%	196.35%	76.87%	77.18%	66.69%
Dacian Gold	DCN	D	39.53%	68.22%	-13.37%	67.76%	53.58%	88.07%
Doray Minerals	DRM	D	18.80%	9.11%	176.63%	55.40%	55.80%	47.67%
Gascoyne Resources	GCY	D	18.37%	52.24%	-44.11%	75.50%	85.66%	51.61%
Medusa Mining	MML	D	24.16%	6.96%	55.88%	60.18%	61.19%	58.28%
Millennium Minerals	MOY	D	47.42%	76.44%	-34.38%	91.58%	88.52%	66.19%
Pantoro	PNR	D	42.51%	50.58%	27.63%	63.92%	58.32%	73.19%
Red 5	RED	D	39.98%	25.81%	66.11%	75.69%	72.67%	81.02%
Troy Resources	TRY	D	-2.68%	-5.31%	2.15%	72.67%	75.60%	67.02%
Wiluna Mining Corporation	WMX	D	26.57%	39.69%	2.38%	93.81%	86.24%	106.44%
Alkane Resources	ALK	E	41.66%	18.53%	84.32%	69.77%	65.90%	76.39%
Kingsrose Mining	KRM	E	-1.57%	-19.52%	31.53%	70.02%	59.94%	85.57%

Source: Thomson Reuters Datastream

Appendix B – Geometric Mean Returns and Daily Performance By Company

Company Name	ASX Code	Category	Geometric Mean Return			Daily Returns Performance		
			2015-2021	2015-2018	2019-2021	% Positive	% Negative	% Zero
AUD Gold			7.29%	7.36%	7.14%	49.16%	49.16%	1.68%
US Gold			6.16%	2.24%	10.02%	49.10%	47.17%	3.73%
Anglogold Ashanti	AGG	A	19.65%	21.99%	17.48%	47.29%	48.48%	4.23%
Kirkland Lake Gold	KLA	A	71.24%	186.03%	5.32%	48.60%	43.68%	7.72%
Newcrest Mining	NCM	A	14.81%	26.82%	4.49%	52.08%	46.98%	0.93%
Northern Star	NST	A	38.59%	88.65%	3.48%	49.78%	43.19%	7.03%
Evolution Mining	EVN	B	39.51%	88.21%	5.05%	56.38%	43.00%	0.62%
Saracen Mineral Holdings	SAR	B	61.06%	125.65%	17.02%	47.14%	43.17%	9.69%
SSR Mining	SSR	B	18.08%	34.17%	4.61%	48.97%	46.42%	4.60%
Alacer Gold	AQG	C	24.36%	1.08%	51.35%	45.73%	46.47%	7.80%
Oceanagold	OGC	C	-1.00%	35.03%	-26.21%	45.61%	46.42%	7.97%
Perseus Mining	PRU	C	27.12%	17.75%	36.69%	41.57%	42.38%	16.05%
Ramelius Resources	RMS	C	68.01%	109.66%	36.22%	42.75%	40.32%	16.93%
Regis Resources	RRL	C	12.15%	42.90%	-10.85%	47.79%	44.06%	8.15%
Resolute Mining	RSG	C	15.92%	65.35%	-17.20%	47.98%	45.99%	6.04%
St Barbara	SBM	C	66.14%	260.02%	-20.15%	52.15%	44.06%	3.80%
Silver Lake Resources	SLR	C	37.67%	41.72%	33.93%	42.19%	42.25%	15.56%
Westgold Resources	WGX	C	2.39%	-20.02%	29.39%	44.11%	46.20%	9.69%
Austral Gold	AGD	D	10.39%	-21.13%	51.80%	16.43%	16.80%	66.77%
Aurelia	AMI	D	9.95%	41.49%	-13.43%	37.77%	38.33%	23.90%
Beadell Resources	BDR	D	-17.75%	-38.27%		34.45%	40.95%	24.61%
Dacian Gold	DCN	D	13.88%	110.04%	-36.24%	38.95%	41.13%	19.91%
Doray Minerals	DRM	D	3.51%	-8.69%		39.33%	40.69%	19.98%
Gascoyne Resources	GCY	D	-10.81%	23.89%	-34.67%	25.20%	27.57%	47.23%
Medusa Mining	MML	D	6.71%	-14.59%	31.76%	40.20%	42.50%	17.30%
Millennium Minerals	MOY	D	-100.00%	69.23%	-100.00%	31.02%	34.72%	34.25%
Pantoro	PNR	D	25.72%	58.74%	0.80%	32.86%	33.29%	33.85%
Red 5	RED	D	11.99%	-1.08%	25.97%	36.90%	37.21%	25.89%
Troy Resources	TRY	D	-25.80%	-37.34%	-12.92%	31.36%	38.39%	30.24%
Wiluna Mining Corporation	WMX	D	-15.63%	5.32%	-31.62%	33.29%	36.84%	29.87%
Alkane Resources	ALK	E	20.10%	-3.94%	48.40%	37.52%	39.95%	22.53%
Kingsrose Mining	KRM	E	-23.47%	-40.39%	-3.02%	26.94%	31.24%	41.82%

Source: Thomson Reuters Datastream

Appendix C – Company Gold Beta

Company Name	ASX Code	Category	US Gold Beta			AUD Gold Beta		
			2015-2021	2015-2018	2019-2021	2015-2021	2015-2018	2019-2021
Anglogold Ashanti	AGG	A	2.302	2.154	2.478	0.904	0.450	1.422
Kirkland Lake Gold	KLA	A	1.219	1.307	1.125	0.596	0.263	0.976
Newcrest Mining	NCM	A	1.080	1.050	1.119	0.588	0.684	0.483
Northern Star	NST	A	1.250	1.113	1.418	0.759	0.958	0.530
Evolution Mining	EVN	B	1.211	1.267	1.153	0.846	0.871	0.822
Saracen Mineral Holdings	SAR	B	1.315	1.276	1.376	1.424	1.580	0.889
SSR Mining	SSR	B	1.529	1.654	1.386	1.290	1.397	1.170
Alacer Gold	AQG	C	1.179	1.090	1.337	0.454	0.447	0.459
Oceanagold	OGC	C	1.074	1.166	0.976	0.994	1.363	0.575
Perseus Mining	PRU	C	1.365	1.425	1.294	0.362	0.392	0.330
Ramelius Resources	RMS	C	1.414	1.231	1.633	1.386	1.638	1.099
Regis Resources	RRL	C	1.044	0.949	1.163	1.010	1.146	0.856
Resolute Mining	RSG	C	1.487	1.536	1.440	0.888	0.994	0.553
St Barbara	SBM	C	1.140	1.019	1.301	1.087	1.163	0.999
Silver Lake Resources	SLR	C	1.406	1.440	1.366	0.643	1.017	0.217
Westgold Resources	WGX	C	0.953	0.648	1.053	1.383	1.511	1.239
Austral Gold	AGD	D	0.221	-0.083	0.569	1.123	1.459	0.738
Aurelia	AMI	D	0.780	0.534	1.083	1.387	1.821	0.893
Beadell Resources	BDR	D	1.438	1.606	0.011	1.426	1.727	1.084
Dacian Gold	DCN	D	0.618	0.862	0.342	1.110	1.193	1.022
Doray Minerals	DRM	D	0.719	0.784	0.756	1.397	1.558	1.217
Gascoyne Resources	GCY	D	0.534	0.868	0.154	0.369	0.390	0.347
Medusa Mining	MML	D	0.940	0.890	0.993	1.750	1.832	1.656
Millennium Minerals	MOY	D	0.948	1.473	0.346	1.081	1.009	1.161
Pantoro	PNR	D	0.599	0.488	0.734	1.473	1.852	1.038
Red 5	RED	D	1.077	0.655	1.570	1.656	1.833	1.452
Troy Resources	TRY	D	0.881	1.131	0.586	1.068	1.152	0.974
Wiluna Mining Corporation	WMX	D	1.402	1.298	1.532	0.496	0.536	0.452
Alkane Resources	ALK	E	0.508	0.155	0.915	0.966	0.462	1.136
Kingsrose Mining	KRM	E	0.402	0.205	0.628	1.062	1.045	1.084

Source: Thomson Reuters Datastream

Appendix D – Company Sharpe Ratios

Company Name	ASX Code	Category	US Gold Sharpe Ratio			AUD Gold Sharpe Ratio		
			2015-2021	2015-2018	2019-2021	2015-2021	2015-2018	2019-2021
Anglogold Ashanti	AGG	A	0.461	0.476	0.427	0.440	0.412	0.486
Kirkland Lake Gold	KLA	A	1.137	1.669	0.102	1.116	1.610	0.172
Newcrest Mining	NCM	A	0.363	0.584	-0.054	0.332	0.496	0.042
Northern Star	NST	A	0.755	1.167	0.071	0.732	1.100	0.138
Evolution Mining	EVN	B	0.768	1.115	0.065	0.745	1.053	0.140
Saracen Mineral Holdings	SAR	B	1.016	1.327	0.419	0.995	1.269	0.484
SSR Mining	SSR	B	0.440	0.611	0.106	0.419	0.553	0.172
Alacer Gold	AQG	C	0.571	0.174	1.335	0.549	0.106	1.397
Oceanagold	OGC	C	0.125	0.626	-0.660	0.105	0.565	-0.602
Perseus Mining	PRU	C	0.581	0.470	0.782	0.564	0.424	0.838
Ramelius Resources	RMS	C	0.982	1.091	0.765	0.965	1.045	0.818
Regis Resources	RRL	C	0.323	0.732	-0.475	0.298	0.665	-0.396
Resolute Mining	RSG	C	0.430	0.838	-0.418	0.412	0.791	-0.358
St Barbara	SBM	C	1.011	1.751	-0.615	0.992	1.702	-0.548
Silver Lake Resources	SLR	C	0.693	0.663	0.741	0.676	0.618	0.801
Westgold Resources	WGX	C	0.195	-0.466	0.663	0.173	-0.530	0.726
Austral Gold	AGD	D	0.469	0.180	0.912	0.457	0.145	0.945
Aurelia	AMI	D	0.544	0.793	-0.155	0.533	0.766	-0.105
Beadell Resources	BDR	D	-0.078	-0.113	2.723	-0.092	-0.153	2.775
Dacian Gold	DCN	D	0.484	1.218	-0.320	0.467	1.161	-0.280
Doray Minerals	DRM	D	0.217	0.110	3.395	0.197	0.055	3.468
Gascoyne Resources	GCY	D	0.154	0.575	-1.141	0.139	0.539	-1.073
Medusa Mining	MML	D	0.289	0.065	0.705	0.271	0.015	0.765
Millennium Minerals	MOY	D	0.444	0.830	-0.743	0.432	0.795	-0.690
Pantoro	PNR	D	0.559	0.816	0.176	0.542	0.764	0.223
Red 5	RED	D	0.439	0.314	0.633	0.424	0.272	0.677
Troy Resources	TRY	D	-0.130	-0.110	-0.188	-0.145	-0.150	-0.136
Wiluna Mining Corporation	WMX	D	0.211	0.426	-0.117	0.199	0.390	-0.084
Alkane Resources	ALK	E	0.500	0.236	0.910	0.484	0.190	0.956
Kingsrose Mining	KRM	E	-0.119	-0.375	0.196	-0.135	-0.426	0.237

Source: Thomson Reuters Datastream

Appendix E – Company Adjusted Treynor Measures

Company Name	ASX Code	Category	US Gold Treynor Measure			AUD Gold Treynor Measure		
			2015-2021	2015-2018	2019-2021	2015-2021	2015-2018	2019-2021
Anglogold Ashanti	AGG	A	0.056	0.088	0.011	0.130	0.355	0.044
Kirkland Lake Gold	KLA	A	0.529	1.401	-0.084	1.062	6.841	-0.061
Newcrest Mining	NCM	A	0.074	0.227	-0.092	0.118	0.304	-0.141
Northern Star	NST	A	0.255	0.770	-0.080	0.405	0.863	-0.147
Evolution Mining	EVN	B	0.270	0.673	-0.084	0.374	0.944	-0.076
Saracen Mineral Holdings	SAR	B	0.413	0.961	0.016	0.373	0.757	0.065
SSR Mining	SSR	B	0.074	0.189	-0.073	0.079	0.201	-0.057
Alacer Gold	AQG	C	0.149	-0.017	0.274	0.363	-0.111	0.873
Oceanagold	OGC	C	-0.072	0.275	-0.420	-0.089	0.213	-0.652
Perseus Mining	PRU	C	0.149	0.104	0.169	0.532	0.299	0.771
Ramelius Resources	RMS	C	0.433	0.866	0.131	0.434	0.633	0.227
Regis Resources	RRL	C	0.052	0.421	-0.220	0.042	0.322	-0.259
Resolute Mining	RSG	C	0.062	0.406	-0.222	0.091	0.597	-0.515
St Barbara	SBM	C	0.521	2.522	-0.269	0.536	2.185	-0.315
Silver Lake Resources	SLR	C	0.220	0.269	0.140	0.464	0.351	1.044
Westgold Resources	WGX	C	-0.046	-0.355	0.139	-0.040	-0.172	0.146
Austral Gold	AGD	D	0.163	2.891	0.650	0.022	-0.186	0.549
Aurelia	AMI	D	0.041	0.722	-0.261	0.015	0.195	-0.277
Beadell Resources	BDR	D	-0.170	-0.257	-13.640	-0.180	-0.256	-0.104
Dacian Gold	DCN	D	0.115	1.242	-1.490	0.054	0.872	-0.465
Doray Minerals	DRM	D	-0.045	-0.149	-0.195	-0.031	-0.094	-0.093
Gascoyne Resources	GCY	D	-0.329	0.241	-3.213	-0.506	0.458	-1.324
Medusa Mining	MML	D	-0.001	-0.197	0.171	-0.007	-0.113	0.124
Millennium Minerals	MOY	D	-1.126	0.450	-3.319	-0.998	0.626	-0.958
Pantoro	PNR	D	0.316	1.144	-0.191	0.121	0.285	-0.101
Red 5	RED	D	0.049	-0.062	0.071	0.025	-0.039	0.101
Troy Resources	TRY	D	-0.370	-0.356	-0.473	-0.315	-0.376	-0.249
Wiluna Mining Corporation	WMX	D	-0.160	0.018	-0.303	-0.474	-0.013	-0.949
Alkane Resources	ALK	E	0.262	-0.445	0.367	0.127	-0.216	0.327
Kingsrose Mining	KRM	E	-0.752	-2.114	-0.283	-0.295	-0.444	-0.132

Source: Thomson Reuters Datastream

Valuation Thesis

Our key valuation metric is the **EV/AISC-Adjusted Annual Production** as we have found in our empirical study that the market valuation is most aligned to this metric, as opposed to earnings, resources and reserves. We also prefer a multiples method over the typical Discounted Cashflow Method for valuation because we understand that beyond even one year of projection, everything is highly speculative – whether it is the management outlook on production and costs as well as the gold price and broader economic drivers. To allow for comparison across all classes of producers, our metric can standardise by the company's scope of production as we observe that the market values the companies with higher production with a greater multiple. However, we scale production by AISC because we believe that not all ounces are equal. Companies that can produce gold at lower cost are naturally more profitable and deserve a higher multiple of their production and other operational or financial performance measures. We use the following classes for the different tiers of gold producers – **A** (major producer – 1Moz p.a. or more), **B** (large producer – 0.5-1Moz p.a.), **C** (mid-tier producer – 150 000-500 000oz p.a.), **D** (junior producer – 50 000-150 000oz p.a.) and **E** (micro producer – less than 50 000oz p.a.).

The **Enterprise Value** is the sum of the market value of equity (stock price multiplied by number of issued stocks) and net debt (total borrowings less cash and gold bullion, but excluding gold in circuit and ore stockpiles). This metric quantifies the market value of the company's assets deployed in the company's operations. The **AISC-Adjusted Annual Production** calculated as the annual production of gold per oz divided by the AISC adjusted by a factor of 1 000. The factor of 1 000 is arbitrarily chosen as a way to standardise the final metric. As an illustration, if a company produces 250 000oz p.a. at AISC of \$1 250, the AISC-adjusted production is 200 000.

When determining the production ranges in our valuation metric, we take the management guidance as this is based on their access to information relating to their operations and progress. We believe that the market will use the guidance figures to base their valuation and investment decisions. This may not always be optimal given that some management may have their bias in reporting their outlook, as well as having a track record of announcing surprises. In such cases, we seek to qualify this in our SWOT analysis and adjust it in our EV/AISC-Adjusted Production multiple.

The **Price Range** determines a reasonable range for which the company stock price should be trading at. This range is relatively wide as it considers the **margin of safety**. A company whose stock price is currently outside the fair value range is significantly over or undervalued and investors should look more deeply into the company's operations, financial performance and recent market announcements. This range should not be taken as the sole driver for investment decisions, but as a starting point for further research to identify the potential causes for the current stock price.

We recognise that many analysts consider discretionary forecasts and adjustments on the company's production level, ore grade, cost levels, resources and reserves and economic

factors into their valuation. We have studied many of these reports and recognise their merits. However, our view is that such subjective adjustments are dubious in terms of additional accuracy of their estimations. This is because with mining companies, both internal and external drivers that affect the company's future performance are unpredictable. Furthermore, we understand that while a company with substantial resources and reserves have potential to convert into substantial value in future, this is contingent on the successes in building the infrastructure, extracting the ore from the ground and processing it in a cost-effective manner. We recognise the criticism by many regarding our approach, but we have tried and tested our valuation against the actual price performance as well as through our own investment performance. We let these results speak for themselves.

Given the rise in gold price in the recent three months, we see reason to re-rate the gold mining companies' valuation metrics upwards to reflect their improving profitability as well as increased enthusiasm from investors. As a rough guide, the fair value ranges for different mining company classes are as follows:

Major and Large Companies - \$8 000-\$12 000/oz

Mid-Tier Companies - \$4 000-\$7 000/oz

Micro and Junior Companies - \$1 500-\$4 000/oz

We also add that after reviewing our reports, we have found another metric that may inform the fair value ranges, namely the Operating Margin. The Operating Margin is the difference between the Gold Sale Price per oz and the AISC. A higher Operating Margin implies higher cashflow generation. We have also found that the market appears to take this into account when determining the price they will pay to purchase the stocks. We found that there is a link between the Operating Margin and our EV/AISC-Adjusted Production in that 8-12 times the Operating Margin gives a reasonable EV/AISC-Adjusted Production.

Glossary

The **All-in Sustaining Cost (AISC)** is a measure adopted by the World Gold Council as a standardised measure of production costs. This cost includes typically the **Cash Cost** associated with the direct production (extraction, transportation, processing and refining costs, staff salary and wages and relevant corporate costs) as well as **Sustaining Expenditure** that may include maintenance of mine equipment and infrastructure, insurance and administration costs over its production life. Companies may still have discretion in apportioning their expenses.

The **Net Cash/Debt** is the net amount of cash and bullion the company holds after their borrowings and interest-bearing debt are paid. This represents the liquidity position of the company, although this measure does not consider whether the debt is current (due within the next twelve months) or not. A company in a significant net debt position is owing more than they currently have in cash and bullion, which may potentially put them in financial distress if the debt is due soon.

The **Net Cashflow from Operations Excluding Maintenance Capital Expenditure** measures to what extent the company can generate cashflows from its operations after paying for its operating costs as well as Cash Paid for Purchases of Property, Plant and Equipment and the Cash Paid for Development Expenditure in the Investing Cashflows section of the Statement of Cash Flows. It does not include Cash Paid for Exploration and Evaluation, which is assumed to be growth capital expenditure. This is by no means a stable and comparable measure as different companies may have discretionary interpretation of what constitutes as Operating Activities and Investing Activities or Development, Exploration and Evaluation expenditures.

Disclaimer

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